Assessment of the Learning Management Systems in Tertiary Institutions in Nigeria: A Narrative Review of Published Studies from 2008 to 2024

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Abstract

Background: The emerging technology to aid learning is the Learning Management Systems (LMS) that help to improve learning and teaching. There is an evolving new perspective to the concept of education with the recent fast development of technologies towards the generation of knowledge, the presentation of knowledge and the new way to reach knowledge. This formulated the increase adoption of Learning Management Systems (LMS) with various adoption patterns.

Objectives: We narratively reviewed the Learning Management Systems in Tertiary Institutions in Nigeria from 2008 -January 2024 to generate evidence for planning and policy.

Methods: The study was a narrative overview of studies related to learning management systems in tertiary institutions in Nigeria. Studies published between 2008- January 2024. The search terms included key words, set synonyms in databases relating to learning management systems. Three main databases: Google Scholar, PubMed, and CINAHL were considered. Abstract and full-text articles were obtained.

Results: The geographical spread of the studies reviewed had national geographical spread (56.4%) across board with 25.6% of the studies carried out in institutions in the South-west geographical zone. The most popular instrument used in the studies is the questionnaire (56.4%), while data base constituted 12.8% of the studies. The majority (87.2%) were carried out in the university setting while 12.8% in the colleges of education. Table 6 presents the studies focus indicated that 20.5% of the

studies assessed the usages of LMS, 10.2%

Conclusion: The study largely suggested satisfaction of LMS with full positive impact on educational sectors promoting improvement in learning and teaching. However, many institutions are still far from its implementation.

Keyword: Learning Management Systems; Learning Technology; Emerges Technology Planning; Policy; Nigeria

Abbreviations

LMS: Learning Management Systems; DAP: Digital Awareness Program; ICT: Information and Communications Technology; WPAT: Word Processing Achievement Test; UTAUT: Unified Theory of Acceptance and Use of Technology.

Introduction

The Nigerian experience of complete lockdown in the COVID-19 period and its negative effects on the economy and educational sector resulted in the option of virtual learning platforms [1]. This is enhanced by the need to devise efficiency and continuity of ease of operations through technology to utilize information and communication to capture, store and retrieve information to the advancement of scientific endeavour [2]. The emerging technology to aid learning is the Learning Management Systems (LMS) that help to improve learning and teaching in students-assisted attendance submission, performance evaluation and support classroom learning [1]. This ensures effective pedagogy and curriculum implementation in technology [3]. ICT processes the storage and processing of information technology in the collection of techniques, skill methods used in the product and services [2]. This innovative technology advancement has contributed to monumental growth in most institution of higher learning. These include the use of software, internet, CD-ROM, online learning or interactive media to disseminate information [3]. There is an evolving new perspective to the concept of education with the recent fast development of technologies towards the generation of knowledge, the presentation of knowledge and the new way to reach knowledge. This formulated the increase adoption of Learning Management Systems (LMS) with various adoption patterns [4]. The uses of LMS include the Moodle, Blackboard, and the WebCT among others. This is reported to be one of the most efficient tools for advancing knowledge, skill and development [1]. This has provided remote teaching outside the physical classroom environment with high learning outcome impacting positively the post Covid-19 era with trends in ICT the Learning Management Systems information that is up-to-date, authoritative with flexible courses that accommodate different learning skills which includes assignment and project submission ease [5].

The technology advancement fallout of the Digital Awareness program (DAP) of the partnership of the federal government and the Afrihab-Zinox promoted the ICT sustainability interventions of learning systems an integral tool to improve teaching and learning facilitated information exchange amongst educators and the outside world affording the opportunity to shift from teachers centered to student centered learning in tertiary Institutions in Nigeria. However, the challenges of infrastructural inadequacy, organizational and operational model due to institutional delivery are reported in Literatures. This review provides a window for the assessment of the Learning Management Systems in the Nigerian Institutions of learning. We narratively reviewed the Learning Management Systems in Tertiary Institutions in Nigeria from 2008 -January 2024 to generate evidence for planning and policy.

Methods

Study Area

The study covered prior works on Learning Management Systems in tertiary institutions in Nigeria from 2008 to January, 2024.

Review Question

How has Learning Management Systems impacted the learning and teaching process in Nigerian Tertiary?

Study Population and Types of Study Included in the Review

Studies that passed the eligibility criteria and were found in databases such as Google Scholar, PubMed and CINAHL were included in the study.

Sample Size and Sampling Method

We utilized the entire 39 article eligible for the study.

Eligibility Criteria

Inclusion Criteria: Studies published in English Language related to learning management systems with clearly stated

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design and protocol and carried out within Nigeria. Studies published between 2008 and January, 2024.

Ineligibility Criteria: Eligible studies with conflict of interest and those with incomplete study design.

Study Design

Study was a narrative overview of studies related to learning management systems in tertiary institutions in Nigeria.

Information Sources

Literature search was conducted using Google Scholar, PubMed and CINAHL.

Article Search Process

The search reviewed relevant journals and articles on learning management systems. Studies published between 2008- January 2024.The search terms included key words, set synonyms in databases relating to learning management systems. Three main databases: Google Scholar, PubMed and

CINAHL were considered. Abstract and full-text articles were obtained. A total of 130,100 articles were obtained relating to learning management systems. These articles were then assessed for eligibility. A total of 39 articles were selected for the review.

Study Articles Selection Process

A total of 130,100 articles were obtained relating to learning management systems; 14100 from Google Scholar, 0 from PubMed and 116,000 from CINAHL. These were assessed based on the eligibility criteria. Duplicate articles were removed and on further screening Figure 1, a total of 39 articles were used for the review.

Data Analyses

The data extracted from the selected articles were entered into a spread sheet for statistical analysis. The variables registered for each articles and reference noted. Data was summarized using proportion and percentages.

Results

References	Title	Location	Design	Year of publication	Study outcome	Recommendations	Study Instrument
Nicholas-Omoregbe OS, et al. [1].	Predicting the adoption of e-learning management system: a case of selected private universities in Nigeria. Turkish Online	South-West/ Private Universities	uses SLT and UTAUT	2017	The significant relationship with Behavioral Intention to adopt eLMS.	The report from the study will assist stakeholders in planning	Questionnaire
Ekoh-Nweke AC, et al. [2]	Information and communication technology as an integral tool for improving teaching and learning for sustainable education in tertiary institutions in Nigeria	South-East/ Widespread	descriptive survey research design	2020	. Effective utilization of ICT by educators to enhance/ improve teaching and learning process.	The teaching and learning to be improved by ICT utilization	Questionnaire

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Ogudu JE [3]	An Assessment of the Use of Emerging Technologies in Education in Kogi State Tertiary Institutions in the New Normal	North-Central/ Colleges of Education	Descriptive survey	2023	The technologies available improve teaching and learning process in the classroom activities	The emerging technologies to be employed in the improvement of teaching and learning	Questionnaire
Ifijeh G, et al. [4]	Assessing E-Learning Tools in an Academic Environment	South-West /University	Descriptive survey	2015	Availability and use of e-learning tools as emerging paradigms in Covenant University	Adequate internet is highly recommended to enhance the use of e-learning platforms in Universities in Nigeria	Questionnaire
Adegbile JA, et al. [5]	Assessment of support facilities available to degree programme distance learning students in the southwestern Nigerian universities	South-West Universities	Descriptive survey	2009	The study assessed the availability of support facilities to degree programme distance learning students	Adequate support facilities to be provided to facilitate better distance learning	Questionnaire
Oguguo BCE, et al. [6]	Analysis of Teachers in the Use of Digital Resources in Online Teaching and Assessment in COVID Times	Colleges of education in Nigeria	A descriptive survey	2023	The measurement of ICT learning outcomes in higher institution.	The utilization of online learning applications was recommended for assessing students.	Questionnaire
Hadiza YB [7]	Availability and utilization of electronic learning technologies for improving teaching and learning in tertiary institutions in Sokotostate	North-West University	Descriptive survey	2022	Some e-learning technologies are available and some are utilized by both lecturers and students in Computer Science program in high extent.	Lecturers should be encouraged to utilize fully, the available e-learning resources and prepare e-books so as to encourage students in the reading of e-books and e-journals.	Questionnaire

Olatunji T, et al. [8]	Comparative Analysis of Operational Structures in Single- and Dual-Mode Distance Learning Institutions in Nigeria	South-West University	Case study research	2021	Differences in the operations of the included compulsory tutorial attendance at OAU and the deployment of part-time and quasi part-time facilitators at NOUN and OAU	Increase in the use of information and communications technology (ICT)	Questionnaire
Ifijeh G, et al. [9]	COVID – 19 pandemic and the future of Nigeria's university system: The quest for libraries' relevance	Nigerian Universities	Responsive library website design	2020	the evolving paradigm shift in teaching methodologies in Nigerian universities as a result of the outbreak of Covid-19	Dynamism in library service delivery, urgency in the acquisition of new skill sets by academic librarians in Nigeria	Secondary data using various search engines and data sights.
Ogunlade BO, et al. [10]	Creating a virtual community of practice through blended learning in teacher education	Southwest Nigerian universities	quasi-experimental design	Jan-24	The use of blended learning to create a virtual community of practice have significantly different professional development outcomes	NIL	Questionnaire
Adedoyin A, et al. [11]	Design and im-plementation of an online teaching and learning management system	North-Central university	System design and modeling of the proposed LMS application	2023	Create an online E-Learning System that provides all in one tool for teachers to develop and administer courses online	Moodle is the most used and favored open-source LMS,	Questionnaire

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Cavus N, et al. [12]	Determinants of Learning Management Systems during COVID-19 Pandemic for Sustainable Education	Nigerian Universities	TAM, and UTAUT2 models' constructs	2021	performance results for all the four developed AI models indicate a significant correlation coefficient between LMS usage and the study parameters	The model can be used in scientific studies	Questionnaire
Yakubu MN, et al. [13]	Determinants of learning management systems adoption in Nigeria	4 Nigerian University	Descriptive survey	2020	System quality, perceived ease of use, and perceived usefulness are important predictors' use of LMS.	Implications for practice and theory are discussed.	Questionnaire
Ayodele AO, et al. [14]	Managing the shift to online: lecturers' strategies during and beyond lockdown	Nigerian Colleges of Education	Qualitative descriptive survey	2023	The quality of teaching and assessment was compromised by factors irregular power supply, poor internet connection, high data costs and limited digital skills	Strategies for educational management advocated	Interview
Ayodele AO, et al. [14]	Managing the shift to online: lecturers' strategies during and beyond lockdown	A college of Education in Nigeria.	Descriptive survey	2023	Strengthening educational technology training for lecturers and students,		Interviews
Oluwalola FK [15]	Effect of Emotion on Distance e-Learning		Narrative discuss	2015	Technophobia effect on distance learning students.	ICT as a catalyst to distance e-learning advancement is to be emphasized.	Narrative essay

Odekeye OT, et al. [16]	Perception of Learning Management System (LMS) on the Academic Performance of Undergraduate Students during the COVID-19 Pandemic	South-west. Osun State university	Descriptive survey design	2023	LMS is helpful in reflecting on students' knowledge gaps when preparing for classes	Recommends students and lecturers to improve on their computer literacy skills.	Questionnaire
Ifegwu AN, et al. [17]	E-Learning: Roadmap to Sustainable Learning and Education in Nigeria.	Nigerian universities	Discourse approach based on content analysis.	2023	The parents should step up in their contributions towards sustainable education and shun any nefarious activities capable of lowering the standard of education.	Teachers/ lecturers or administrator should become more conscious in the discharge of their duty	Conference analysis
Olugbeko SO [18]	E-learning in Nigeria: the perception of Nigerian certificate in education (NCE) pre-service teachers	Nigerian college of Education	Descriptive survey	2023	Pre-service teachers perceived e-learning as not as useful to them as the conventional physical learning and believed that e-learning is not easy and not as helpful as face-to-face learning	The adoption of blended learning that combines the features of face-to-face learning and e-learning.	Questionnaire
Owolabi JI, et al. [19]	Evaluating gender differences on the impact of moodle and edmodo learning management system platforms on students' achievement.	South-West	quasi experimental design using Conference paper	2022	. The differences in the impact of Moodle and Edmodo Learning Management System (LMS) platforms on achievement in Word Processing across gender.	Moodle LMS platform should be employed to improve on Business Education students' achievement in word processing skills.	Word processing achievement test (WPAT)

Chukwuemerie OC, et al. [20]	Experiences, challenges and acceptance of e-learning by adult learners in sandwich programme of Nnamdi Azikiwe University Awka, Nigeria	South-East Nigeria. University.	Descriptive survey research design	2024	Adult learners had pleasant experiences of e-learning in sandwich programmes of Nnamdi Azikiwe University in the 2021/2022 Session	The management of Nnamdi Azikiwe University should invest more in e-learning by way of upgrading their ICT architecture and organize more training.	Questionnaire
Olugbade D [21]	Exploring the Impact of Learning Technologies in Teaching Interaction Design: A Case Study at First Technical University, Nigeria.	South-West/University	an action research approach	2023	the potential of technology-enhanced pedagogies in creating a more engaging and effective learning environment	Educators and institutions can use these insights to optimize their teaching strategies and create engaging learning environments that promote active student participation, critical thinking,	First Technical instruments: instruction, including static slides and lectures.
Burwa UM, et al. [22]	ICT and managing university education for quality assurance in Nigeria.	Nigerian University	Reviews	2023	insufficient funding which resulted in numerous set-back to Quality management systems	For efficient and effective management of university system, total quality management is expedient.	Search engines
Awe BA [23]	Imperatives of Paradigm Shift in Current Pedagogical Strategies in Nigerian Public Universities.	Nigerian Public Universities.	Narratives discuss.	2021	concept of virtual learning, the influence of ICT revolution on pedagogical strategies	Adequate funding of NUPs, massive deployment of ICT infrastructure for virtual learning, reduced cost of internet services, provision of Wi-Fi on the campuses.	Essay
Olusanya O, et al. [24]	Information And Communication Technology (ICT): Catalyst For Enhancing The Intellectual Capacities of Educationists	Nigerian Universities	Review	Jan-24	The effect of E-learning on the overall learning experience is a quantum leap.		Review

Kayode AE, et al. [25]	Information and communication technology as a blended-learning tool for sustainable development for university students	South-west Nigerian University.	descriptive survey	2023	mobile phones, printers and interactive whiteboards constituted the most available ICT tools for students' utilization on campus		Questionnaire
Idowu TA, et al. [26]	Institutional factors and use of open educational resources in Nigerian university libraries	Nigerian university libraries.	Descriptive survey	2023	OER has been deployed and used in Nigerian university libraries		Reviews
Omanyo JO, et al. [27]	Knowledge management considerations in learning management systems in higher education institutions: a systematic review, synthesis and research agenda	Nigerian Universities.	Systematic literature review	2023	interlink between knowledge management and learning management systems is still less explored		Search Engines of data base websites
Biccard P, et al. [28]	Lecturers' Perceptions of a Learning Management System Migration at an Open Distance and e-Learning Institution.	Nigerian universities	Explorative studies	2024	Hasty and haphazard deployment, insufficient training, and a lack of consultation are factors to be considered if the use of LMS is to be adopted.		Questionnaire
Ifarajimi MA [29]	The trends and innovations in curriculum development and delivery in the digital age	Nigerian universities	Explorative survey	2023	Some of the opportunities and barriers that educators face in adopting LMS		Data base websites

Asuzu CM [30]	Online learning: a 21st century approach to education	Nigerian Universities	Narrative Analysis	2023	Online learning in the 21st century.		
Alumona D, et al. [31]	Perceived benefits, challenges and level of implementation of Learning Management System (LMS) among staff and students in delta state tertiary institutions	South-South of Nigeria. University	Descriptive survey	2023	The benefits of the learning management system as perceived by academic staff is high; that there is a significant difference between the perception of staff and students	Management should conduct pragmatic seminars and workshops to educate students and staff about LMS.	Questionnaire
Hamzat AS, et al. [32]	Remote teaching and learning in Nigerian private universities	Nigerian universities	Narrative discus	2023	The pandemic produced the use of remote learning process without adequate preparations resulting in some challenges	new hybrid model of education will emerge with significant benefits	
Oladipo AJ, et al. [33]	Scale development and validation of learners' satisfaction in Open and Distance Learning (ODL) in the University of Lagos	Descriptive survey	South-West Nigeria. University.	2023	Development of an instrument for the measurement of learner satisfaction in ODL services in Nigeria	Prospective investigations on Distance learning should be carried out.	Questionnaire
Mustapha AM, et al. [34]	Students' Motivation and Effective Use of Self-regulated Learning on Learning Management System	North-West Nigeria University.	Quasi-experimental study.	2023	Utilizing Moodle as a learning management system enhances ability to learn independently and motivates them to work hard.	Self-Regulated Learning strategies of Moodle as LMS is highly recommended to promote autonomous learning.	Questionnaire

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Ekwueme LO, et al. [35]	Teaching and learning of library and information science education in open and distance learning using electronic platforms	Open University of Nigeria	Descriptive survey	2023	Electronic platforms fostered intercultural communication irrespective of time, allow teaching irrespective of location and space.	Electronic platforms recommender for teaching.	Questionnaire
Smah SO [36]	The construction of effective learning ecosystems in open and distance learning (ODL) Universities: technologies, institutional preparedness, and change	Nigeria Universities.	Documentary review	2023	Determinant factor for the construction of open distance learning	Institutional preparedness and national priorities drive the effective direction of the change that meets the requirements of ODL learning systems	Literature evaluation
Eze SC, et al. [37]	The utilization of e-learning facilities in the educational delivery system of Nigeria	Nigerian University	Descriptive research design	2018	E-learning facilities are adequate and accessible to users,	e-learning facilities should be constantly upgraded,	Interviews
Yakubu MN, et al. [38]	Factors affecting the adoption of e-learning technologies among higher education students in Nigeria	Nigerian University	Unified theory of acceptance and use of technology (UTAUT).	2019	Factors that influence the adoption and use of educational technology	formulation of approaches and guidelines to enhance the adoption highly recommended	Unified theory of acceptance and use of technology (UTAUT).

Table 1: The Evidence-based table of studies evaluated for the Learning Management Systems in tertiary institutions in Nigeria N=39.

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S/N	Description of Items	n	Percentage (%)
1	Descriptive Study	21	53.8
2	Comparative analysis	1	2.5
3	Responsive analysis	1	2.5
4	Quasi-experiment	3	7.6
5	Action Research	1	2.5
6	Reviews	4	10.2
7	Narrative discus	5	12.8
8	Explorative	2	5.1
9	Documentary	1	2.5
	Total	**39**	**100**

Table 2: The distribution of Study Types N=39.

S/N	Description of Items	No	Percentage (%)
1	South-West	10	25.6
2	South-East	2	5.1
3	Nigeria widespread	22	56.4
4	North-central	2	5.1
5	North-west	2	5.1
6	South-south	1	2.5
	Total	**39**	**100**

Table 3: Geographical location spread of the studies N=39.

	Description of Items	n	Percentage (%)
1	Questionnaire	22	56.4
2	Database search	5	12.8
3	Interview and focus group	3	7.7
4	Literature	4	10.3
5	First technical instrument instructions	1	2.6
6	Unspecified	3	7.7
7	Word processing achievement test (WPAT)	1	2.6
	Total	39	100

Table 4: The data collection instrument used in the studies N=39.

	Description of Items	No	Percentage (%)
1	University	34	87.2
2	Colleges of education	5	12.8
	Total	39	100

Table 5: Educational study sites N=39.

	Description of Items	n	Percentage (%)
1	Adoption of LMS	4	10.2
2	LMS improving learning processes	1	2.5
3	Assessment of usages of LMS	8	20.5
4	Structural designs of LMS	1	2.5
5	Challenges of usage of LMS	3	7.6
6	Improvement of academic performances by LMS	1	2.5
7	Perception of users of LMS	3	7.6
8	Perceived benefits of LMS	1	2.5
9	Library services utilization of LMS	3	7.6
10	LMS as sources of online and DLP	4	10.2
11	History, innovative emergence and scaling ups of LMS	4	10.2
12	Extent of preparedness of the Nigeria	1	2.5
13	Impact of LMS on learning	3	7.6
14	Success factors of LMS	1	2.5
15	Areas of research on LMS	1	2.5
	Total	**39**	**100**

Table 6: Study focus N=39.
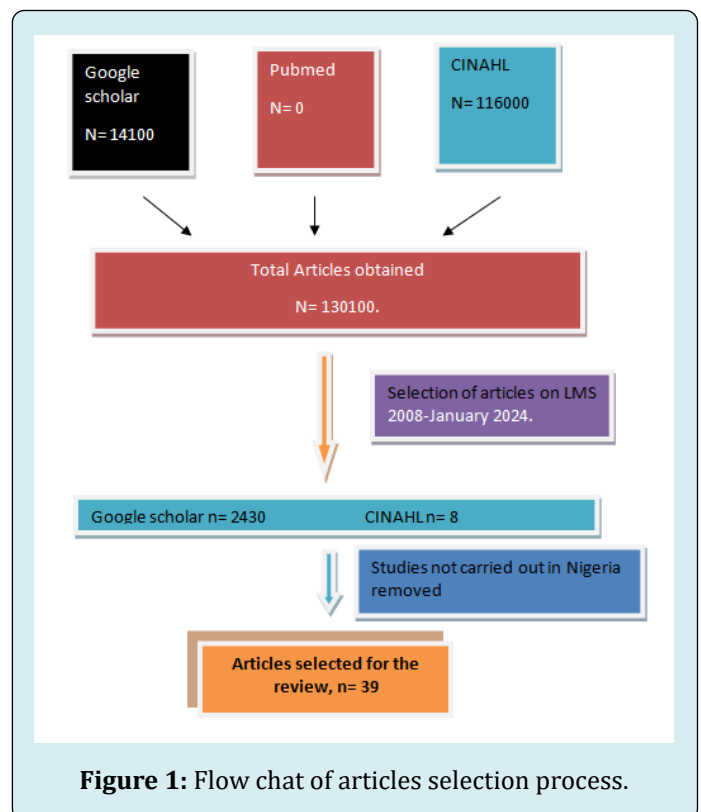
Figure 1: Flow chat of articles selection process.

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Discussion

Overview of Learning Management Systems

Technology advancement has set a pace in providing options from the Covid-19 lockdown to making the teaching and learning process between students and teachers more resourceful and successful, enhancing management of online course, distributing course materials, promoting collaboration between students and lecturer of the value added technology in education. It manages all aspects of student's procedures from registration to storing of every students evaluation through digital assignments [7]. LMS created interactive websites assisting student learning with assessment, grading, reporting, and tracking progresses to infuse improvement in learning [8]. Students are able to monitor academic progress enhancing training evaluation [9]. The use of LMS is not only time and money saving but support the delivery of effective instructions that will enhance interactive learning environment between students and faculty [8].

LMS in Tertiary Institutions in Nigeria

The adoption of LMS in tertiary institutions in Nigeria, have yielded dividend of effective utilization of ICT enhancing learning and teaching [2]. This has positively impacted the quality of learning especially with the innovative on-line teaching platforms. There is significant need to investigate the published works to identify the coverage of researches on learning management systems in tertiary institutions to evaluate the impact of the system on educational sector as indicated in Table 1. However the success story of LMS [14] opined that the quality of teaching and assessment could have been compromised by factors such as irregular power supply, poor internet connections, high data cost and students limited digital skills [10,39].

In this review, majority of the studies were descriptive surveys, few were reviews, and quasi-experimental and minuscule of them are comparative and action researches (Table 2). The geographical spread of the studies reviewed had a national geographical spread above average and predominant across board. A quarter of the studies were carried out in institutions in the south-west geographical zone (Table 3). The most popular instrument used in the studies was the questionnaire, while data base constituted 12.8% of the studies (Table 4). The majority of studies were carried out in the university setting while a minimal proportion took place in the colleges of education (Tables 5 & 6) presents the studies focuses indicated that one-fifth of the studies assessed the usages of LMS, one-tenth considered LMS adoption, and LMS as sources of online and distance learning platforms, History and innovative emergence of LMS,

and scaling ups studies [40-43]. Improvement of academic performances and extent of preparedness of Nigeria for this advancement were the least utilized.

Conclusion

The study reveals the evidence-based satisfaction of LMS with full positive impact on educational sectors promoting improvement in learning and teaching. However, not many of the tertiary institutions have implementation LMS. The decision to the choice of types of system also required critical evaluation and sensitivity in selection adoptions types. However the highlighted challenges must be adequately viewed in the implementations.

Recommendations

It is highly recommended that the adoption of LMS must be fully employed in tertiary institutions of learning and the blended learning that combines the features of face-to-face and e-learning be employed for effective and efficient learning processes in the tertiary institutions.

Study Limitations

The searches carried out were related to learning management systems in tertiary institutions in Nigeria, some articles containing details may have been omitted through the search terms used during the study.

Ethical Approval

Not applicable.

Conflict of Interest

The authors have none to declare.

Sponsorship

None was received for this study.

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